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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/934,163

08/21/2001

Josh D. Collier

2442/110

7395

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7590

12/09/2003

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EXAMINER

LEROUX, ETIENNE PIERRE

ART UNIT

PAPER NUMBER

2171

DATE MAILED: 12/09/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/934,163

Applicant(s)

COLLIER, JOSH D.

Examiner

Etienne P LeRoux

Art Unit

2171

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.65(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 6-9, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pat No 6,292,807 issued to Larson (hereafter Larson '807) in view of US Pat No 5,995,991 issued to Huang et al (hereafter Huang '991).

Claim 1:

Larson '807 discloses:

A method for reordering messages for processing, the messages received from a communication network, each message characterized by a source identifier and type [Fig 4], the method comprising:

- providing a message store, the message store including a plurality of storage slots [Fig 5]:
- providing a plurality of FIFO queues [Read request Queue and Write Request Queue]
  - enqueueing a given message including:
  - storing the given message in a given slot identified by a given tag [age tag, Fig 5]:
  - selecting one of the FIFO queues based on at least one source identifier and type for the given message [read request and write request]
  - loading the given tag onto the selected FIFO queue [Fig 5].

Larson '807 discloses the elements of claim 1 as noted above.

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Larson '807 fails to disclose a storage slot identified by a given tag when any slot is empty.

Huang '991 discloses a storage slot identified by a given tag when any slot is empty [col 8, lines 24-37].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Larson '807 to include a storage slot identified by a given tag when any slot is empty as taught by Huang '991.

The ordinarily skilled artisan would have been motivated to modify Larson '807 per the above for the purpose of distinguishing between empty (no numeric value stored therein) and nonempty (storing a numeric value) memory storage locations.

Claims 2 and 13:

Larson '807 discloses:

selecting a message for dequeueing after the tag corresponding to the message is at the head of one of the FIFO queues, removing the tag correspondence to the selected message from the corresponding FIFO queue, and freeing the storage slot identified by the tag corresponding to the selected message [col 7, lines 50-60]

Claim 6:

Larson '807 discloses wherein selecting one of the FIFO queues includes ensuring that no two FIFO queues contain tags corresponding to messages with the same source identifier and type [read request and write request per Fig 1]

Claim 8:

Larson '807 discloses:

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A method for reordering messages for processing by a node, the messages received from a communication network, each message characterized by a source identifier and type [Fig 4], the method comprising:

- providing a message store, the message store including a plurality of storage slots, the slots storing messages [Fig 5]
- providing a plurality of FIFO queues, the queues containing tags corresponding to storage slots [read request and write request]
- selecting a given message for dequeueing after the tag corresponding to the given message is at the head of one of the FIFO queues;
- removing the tag corresponding to the given message from the FIFO queue, and freeing the storage slot identified by the tag [col 7, lines 50-60].

Larson '807 discloses the elements of claim 1 as noted above.

Larson '807 fails to disclose identifying storage slots.

Huang '991 discloses identifying storage slots.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Larson '807 to include identifying storage slots as taught by Huang '991.

The ordinarily skilled artisan would have been motivated to modify Larson '807 per the above for the purpose of distinguishing between empty (no numeric value stored therein) and nonempty (storing a numeric value) memory storage locations.

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Claim 12:

Larson '807 discloses: a message reordering device for messages received from a communication network for processing, each message characterized by a source identifier and a type, the device comprising:

- o a message store, the message store including a plurality of storage slots [Fig 5],
- o a plurality of FIFO queues [Fig 5, read request/write request]
- o logic for enqueueing a given message including storing the given message in a storage slot identified by a given tag [Fig 5]:
- o selecting one of the plurality of FIFO queues based at least on source identifier and type for the message [[Fig 5, read request/write request]
- o loading the given tag onto the selected FIFO queue [Fig 5]

Larson '807 discloses the elements of claim 1 as noted above.

Larson '807 fails to disclose a storage slot identified by a given tag when any slot is empty.

Huang '991 discloses a storage slot identified by a given tag when any slot is empty [col 8, lines 24-37].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Larson '807 to include a storage slot identified by a given tag when any slot is empty as taught by Huang '991.

The ordinarily skilled artisan would have been motivated to modify Larson '807 per the above for the purpose of distinguishing between empty (no numeric value stored therein) and nonempty (storing a numeric value) memory storage locations.

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Claims 4 and 9:

Larson '807 discloses the elements of claims 1 and 2 as noted above.

Larson fails to disclose wherein selecting a message for dequeueing further includes determining that resources are available for processing the message.

Official Notice is taken that wherein selecting a message for dequeueing further includes determining that resources are available for processing the message is well-known and expected in the art.

The ordinarily skilled artisan would have been motivated to modify Larson '807 as above for the purpose of ensuring that data is accurately processed.

Claim 7:

Larson '807 discloses the elements of claim 1 as noted above.

Larson '807 fails to disclose wherein the number of FIFO queues equals the number of storage slots.

Official Notice is taken that a FIFO queue with a plurality of storage slots is well-known and expected in the art [refer Larson '807, Fig 5]

The ordinarily skilled artisan would have been motivated to modify Larson '807 for the purpose of scheduling a plurality of messages in each FIFO stack.

1. Claims 3, 5, 10, 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson '807 in view of US Pat No 6,377,984 issued to Najork et al (hereafter Najork '984)

Claims 3, 11 and 14:

Larson '807 discloses the elements of claims 1, 2 and 8 as noted above.

Larson '807 fails to disclose wherein selecting a message for dequeuing includes arbitrating for priority by applying a round robin priority algorithm

Najork '984 discloses wherein selecting a message for dequeuing includes arbitrating for priority by applying a round robin priority algorithm [col 8, lines 13-16]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Larson '807 to include wherein selecting a message for dequeuing includes arbitrating for priority by applying a round robin priority algorithm as taught by Najork '984.

The ordinarily skilled artisan would have been motivated to modify Larson '807 for the purpose of controlling the dequeuing of a plurality of queues in an orderly manner to thereby improve the speed of operation.

Claims 5 and 10:

Larson '807 discloses the elements of claims 1, 2, 4 and 8 as noted above.

Larson '807 fails to disclose wherein selecting a message for dequeuing further includes arbitrating for priority.

Najork '984 discloses wherein selecting a message for dequeuing further includes arbitrating for priority [col 8, lines 13-16]

The ordinarily skilled artisan would have been motivated to modify Larson '807 for the purpose of controlling the dequeuing of a plurality of queues in an orderly manner to thereby improve the speed of operation.



***Response to Arguments***

Applicant's arguments filed 10/29/03, have been fully considered but they are not persuasive.

**First Applicant Argument:**

Applicant states on page 8 "As amended, independent claims 1 and 12 now require: 'storing the given message in a storage slot identified by a given tag, when any slot is empty.' Embodiments of the present invention allow messages to be stored in any empty message slot providing improved efficiency versus a system where the message slots are dedicated for specific types of messages. Since Larson does not teach a required limitation of claims 1 and 12, Larson cannot anticipate either claim 1 or 12. Claims 2, 6 and 13 which depend from these independent claims and add further limitations are not anticipated by Larson for at least the same reasons as for the independent claims."

**First Examiner Response:**

Examiner is not persuaded. Examiner maintains 'storing the given message in a storage slot identified by a given tag, when any slot is empty' is well-known and expected in the art. Due to the amendment of claim 1 to include 'storing the given message in a storage slot identified by a given tag, when any slot is empty' a new art rejection in view of Huang '991 is included in supra Office Action.

**Second Applicant Argument:**

Applicant states on page 9 "Claim 8, as amended, now requires: 'providing a plurality of FIFO queues, the queues containing tags identifying storage slots.' [.....] Thus Larson does not teach a required limitation of claim 8 as amended, and cannot anticipate claim 8."

**Second Examiner Response:**

Examiner is not persuaded. Examiner maintains 'providing a plurality of FIFO queues, the queues containing tags identifying storage slots' is well-known and expected in the art. Due to the amendment of claim 8 to include 'providing a plurality of FIFO queues, the queues containing tags identifying storage slots' a new art rejection in view of Huang '991 is included in supra Office Action.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne LeRoux whose telephone number is (703) 305-0620. The examiner can normally be reached on Monday – Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic, can be reached on (703) 308-1436.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Etienne LeRoux

12/4/2003



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